

## Studies in the African Agrilinae, Coraebini II. (Coleoptera: Buprestidae)

by

C. L. BELLAMY and E. HOLM

Department of Entomology, University of Pretoria, Pretoria 0002

A new genus, *Lepidoclema* is described for two new species, *L. magna* and *L. parva* from the southern Namib desert dune area. The species are illustrated and the genus is compared to the closest genera in the Coraebini. The ecology and distribution of the two species are recorded and discussed.

In 1924, Obenberger described *Clema transvaalensis*, the first southern African species of an otherwise palearctic genus. At the same time he compared his new species with a species of the Australian genus *Paracephala* Thomson. Théry (1938) erected the genus *Pseudoclema* for *C. transvaalensis*, noting the important differences between the two genera and again mentioning the superficial resemblance to *Paracephala*. Cobos (1954) described *Pseudoclema theryi* and related *Clema* and *Pseudoclema* to the genera currently (Cobos 1980) placed within the Cyldromorphinae. He apparently re-evaluated this relationship, as he did not include either genus in his key when he studied the Cyldromorphini again (Cobos 1960).

A more or less natural group of genera of the Coraebini seems to consist of the following genera: *Clema* Semenov, *Pseudoclema* Théry, *Promeliboeus* Obenberger, *Anadontodora* Obenberger, and *Paracephala* Thomson. These genera plus the strikingly divergent *Lepidoclema* **gen. nov.** perhaps constitute an early branching in the phylogeny of the tribe. Further study is needed to ascertain the validity of the genera *Promeliboeus* and *Anadontodora* and their species, as well as the species of *Paracephala* before a formal assessment of the phylogeny of this group of genera is possible.

Illustrations are given in Figs 9-16 in the preceeding paper. Abbreviations for collections which supplied material and/or have type material deposited are as follows:

- |      |   |
|------|---|
| ACAS | — A. Cobos collection, Almeria, Spain.                |
| CLBC | — C. L. Bellamy Collection, Pretoria.                 |
| GHNC | — G. H. Nelson Collection, Pomona, California, U.S.A. |
| NMB  | — National Museum, Bloemfontein.                      |
| NCI  | — National Collection of Insects, Pretoria.           |
| TM   | — Transvaal Museum, Pretoria.                         |
| WIN  | — State Museum, Windhoek, S.W.A./Namibia.             |

Genus *Lepidoclema* gen. nov.Type species; *Lepidoclema magna* sp. nov.

Size small, less than 10,0 mm; elongate, subcylindrical; shining, dark aeneous; entire body covered with dense squamose setae; dorsal surface of antennae, legs, disc of head, pronotum, and elytra with setae more or less round, barely overlapping; lateral and ventral portions of body with elongate setae, densely overlapping, especially at segmental margins.

*Head*: convex on vertex, flattened on frons; frons medially depressed; inner margin of eyes diverging dorsally; eyes small, not touching pronotum laterally; epistome narrowly produced between antennal insertions; antennal insertions small, close together, distant from eyes; labrum with erect setae; antenna serrate distally.

*Pronotum*: slightly wider than head, widest at apical 1/3; apical margin weakly bisinuate with slight median lobe; lateral margins weakly arcuate, gradually narrowing from widest point to base; basal margin strongly bisinuate; disc more or less convex with slight, shallow depressions; scutellum triangular.

*Elytra*: basally as wide as pronotum; humeri moderately indicated; sides internally arcuate in middle half, exposing laterodiscal aspect of middle abdominal segments; separately rounded apices strongly serrate; pygidium entirely exposed.

*Underside*: with prosternum strongly convex; prosternal process narrowed between procoxae to an elongate sharp acumination which fits into large circular cavity between mesocoxae; abdominal sternites regularly convex.

*Legs*: with femora fusiform; tibiae more or less straight; tarsi with segments 1-4 slightly lobed distally, each with wide pulvillus; segment 5 greatly reduced, with bifurcate apex.

ETYMOLOGY. From the Greek: *lepidō* (scale) and *clema* (a twig).

The genus is recorded from the southern Namib dune area, and is the only known buprestid apart from *Julodis kochi* Ferreira which occurs throughout these dunes. *Lepidoclema* can immediately be separated from its nearest relative *Pseudoclema* by virtue of the following distinct characters: the dense, squamose setae; the sharply acuminate prosternal process and the receiving cavity between the mesocoxae; and the greatly reduced, bifurcate fifth tarsal segment.

*Lepidoclema magna* sp. nov., Figs 9, 10, 11, 12 & 13 (p. 124)

Size: 6,2-9,5 × 1,6-2,5 mm.; subcylindrical; covered with dense, squamose setae above and below.

*Head* with frons flattened, with two slight depressions between eyes, more or less corresponding to and dorsad to antennal insertions; median portion of epistome narrowed between and ventrad of antennal insertions; labrum more or less cordate, with elongate setae over distal margin; antennae with segment 1 regular, short, slightly wider in middle; segments 2 & 3 each longer than 1, widest distally; antenna elongately serrate segments 4-10 elongate serrate; segment 11 subserrate.

*Pronotum* wider than head, widest before middle, length subequal to width, 1,1 × wide as long; disc flattened, laterally rounded with no division of lateral confluence with proepisternum; anterior margin weakly sinuate with slight median lobe; lateral margins broadly arcuate; basal margin strongly bisinuate, with median truncate lobe

anteriad scutellum; scutellum triangular, width subequal to length and sides weakly concave.

*Elytra* as wide as pronotum, widest basally opposite humeri; humeri moderately indicated; disc flattened, steeply rounded laterally, with a flattened depression lateromedially (posteriad of each humerus) extending to basal  $\frac{1}{3}$ ; lateral margin with broad basal epipleural lobe; side concave from lobe to apical  $\frac{1}{3}$ , slightly exposing dorsal aspect of metepisternum and basal abdominal sternites; margin subserrate from apical  $\frac{1}{2}$  to the separately rounded, sharply serrate apices; entire pygidial tergite extending beyond apices; pygidium preapically steeply declivous up to the broad, marginal, semi-transparent testaceous lobe.

*Underside*: with proepisternal region broad; prosternum more or less triangular with apical margin broadly arcuate, narrowing posteriad to a sharply acuminate process; prosternal disc convex; prosternal process received in setose cavity between mesocoxae; abdominal sternites with suture between 1 and 2 indicated laterally, medially completely fused; sutures between 2, 3, 4, & 5 weakly bisinuate; sternite 5 with slightly indicated, preapical carina; apex regularly rounded.

*Legs*: with femora robust, fusiform; tibiae slightly longer than femora, basally somewhat arcuate; tarsal segments 1–4 subequal, with broad pulvilli ventrally, centrally depressed; tarsal segment 5 greatly reduced, narrow, elongate, apically bifurcate.

*Genitalia* as in Fig. 13 (p. 000).

**MATERIAL EXAMINED.** Holotype ♂ (TM): (SOUTH WEST AFRICA): Gobabeb, 23.35S, 15.0E, 408 m; 22 paratypes as follows: 3 ♂, same data as holotype; 1 ♀, SOUTH WEST AFRICA: Gobabeb, 70 mi. SE of Walvis Bay, 23 August 1965, Sandy dunes, trap no. 40; 1 ♀, Gobabeb, iii.1965, C. Koch; 2 ♂, 2 ♀, SE 25 15 Aa4, Jan. 1977, Holm, Kirsten, & Scholtz; 1 ♀, same data except, SE 25 15 Ac4; 1 ♀, same data except, SE 24 15 Ca1; 1 ♂, N. Uri-Hauchab, 25 15 Ac2, 6.vii.76; 1 ♂, 1 ♀, 30 km N Lüderitz, SE 26 15 Ac, 5.x.1979, E. Holm, C. H. Scholtz; 2 ♂, Dunes SW of Kanaan, SE 25 16 Cc, Lüderitz, 2 May 1977, M-L. Penrith, S. Louw; 1 ♂, Rooibank, 23° 10' S., 14 38' E., Walvisbaai, 24–28 July 1977, S. Louw, M-L. Penrith; 1 ♂, Rooibank, 15 August 1976, S. Louw, M-L. Penrith; 1 ♀, Kuiseb Delta, SE 23 14 Ba, 29 Mar.–1 Apr. 1977, S. Louw, M-L. Penrith; 2 ♂, 1 ♀, S25.45, E15.50, 10.iv.1984, B. & J. Fratscher, G. & S. Newlands. Paratypes are deposited in the following collections: ACAS, CLBC, GHNC, NCI, TM and WIN.

The species is named for its large size. The host plant of *L. magna* is the dune grass *Stipagrostis sabulicola*, which has stems up to 5 mm in diameter and is about one meter tall. The beetles bore in these stems, and make round emergence holes on the sides. They have been observed to fly very actively at temperatures of up to 44° C in the shade. The distribution of *S. sabulicola* is the central dunes of the southern Namib desert.

***Lepidoclema parva* sp. nov.**, Figs 14, 15 & 16 (p. 124)

Size: 4.4–6.0 × 1.1–1.4 mm; subcylindrical; covered with dense squamose setae above and below.

*Head*: with frons with central depression from vertex to dorsad antennal insertions; a strongly impressed (vague under scales) inverted 'V' in dorsal  $\frac{1}{2}$  of depression; median portion of epistome narrowed between and ventrad of antennal insertions; labrum more or less quadrate, with elongate setae in distal  $\frac{1}{2}$ ; antennae with segment 1 short, longer than wide; segments 2 and 3 each longer than 1, widest distally; antenna

serrate from segments 4–10, with these segments triangular widest distally, with length subequal to width; segment 11 with short distal appendix.

*Pronotum* wider than head, widest before middle,  $1.2 \times$  wide as long; apical margin weakly sinuate with slight median lobe; lateral margins broadly and shallowly arcuate, basally vaguely carinate, apically rounded up to confluence with proepisternum; basal margin bisinuate with median, slightly arcuate lobe anterior of scutellum; disc convex laterally, flattened medially, with a slightly impressed transverse groove anterior of mediobasal lobe; scutellum triangular, length subequal to width, margins slightly arcuate.

*Elytra* as wide as pronotum, widest basally opposite humeri; humeri moderately indicated; disc flattened, rounded laterally, with a flattened lateromedial depression posterior to each humerus extending to basal  $\frac{1}{3}$ ; epipleural lobe short; lateral margin medially, concave exposing dorsal aspect of metepisternum and laterobasal abdominal sternites; margin serrate from apical  $\frac{1}{2}$  becoming strongly serrate at the separately rounded apices; distal portion of penultimate abdominal tergite and entire pygidium exposed; pygidium with membranous marginal lobe medioapically concave.

*Underside*: with proepisternum wide basally; prosternum wide apically, with apical margin weakly bisinuate; prosternal process slightly expanded posterior of procoxae, then sharply acuminate apically, this apex received into a setose cavity between mesocoxae; abdominal sternites with suture between 1 and 2 vaguely but entirely indicated; sutures between sternites 2, 3, 4, & 5 weakly arcuate; sternite 5 with weak pre-apical carina; apical margin rounded, entire.

*Legs* as in *L. magna*.

*Genitalia* as in Fig. 16 (p. 124).

**MATERIAL EXAMINED.** Holotype ♂ (TM): (SOUTH WEST AFRICA): Namtib, 70 m NW Aus, Gt. Namaquald., C. Koch, G. van Son; 16 paratypes as follows: 2♀, same data as holotype; 1♀, SWA, Gobabeb, iii.1965, C. Koch; 1♂, South West Africa, Namib/Naaukluft Park, Kuiseb R. nr. Gobabeb, 23.43S, 15.03E, 18.ii–20.iii–1983, Nat. Coll. Kuiseb Servedy, collected from *Eragrostis spinosa* (NCI); 1♂, (TM) labelled 30; 2♂, 2♀, Sargdeckel, Klinghardt Mts., 27° 24' S., 15° 41' E., Diamond area 1, 1–2 Oct. 1982, M. L. Penrith, J. Irish; 1♂, 1♀, Vogelstraußskluft 87, Bethanien, SE 27 17 Ba, 24–29 Sept. 1974; 1♂, 3♀, S25.45, E15.50, 10.iv.1984, B. & J. Fratscher, G. & S. Newlands; 1♀ (NMBH 8487), SOUTH AFRICA: CAPE; Jakkalsputs, S28.38 E18.54, 9–11 Sept. 1982, S. Louw. Paratypes are deposited in the following collections: CLBC, NCI, NMB, TM and WIN.

The species is named for its small size. *Lepidoclema parva* and *L. magna* can be separated by the differences in the frontal depressions, the serrate antennal segments, the shape of the labrum, and the male genitalia. It has a significantly wider distribution than *L. magna*, extending well into the pro-Namib. The host plant is probably *Eragrostis spinosa*, which occurs in the marginal inland dune areas.

## ECOLOGY

The scaly setation of both species of *Lepidoclema* is very aberrant and unique for an agriline, and undoubtedly is an adaptation to the desert environment. It may be noted that one tenebrionid genus of the same region, *Lepidochora* is equally singular in its family for its similar covering scaly setae. The reason for the other striking apomor-

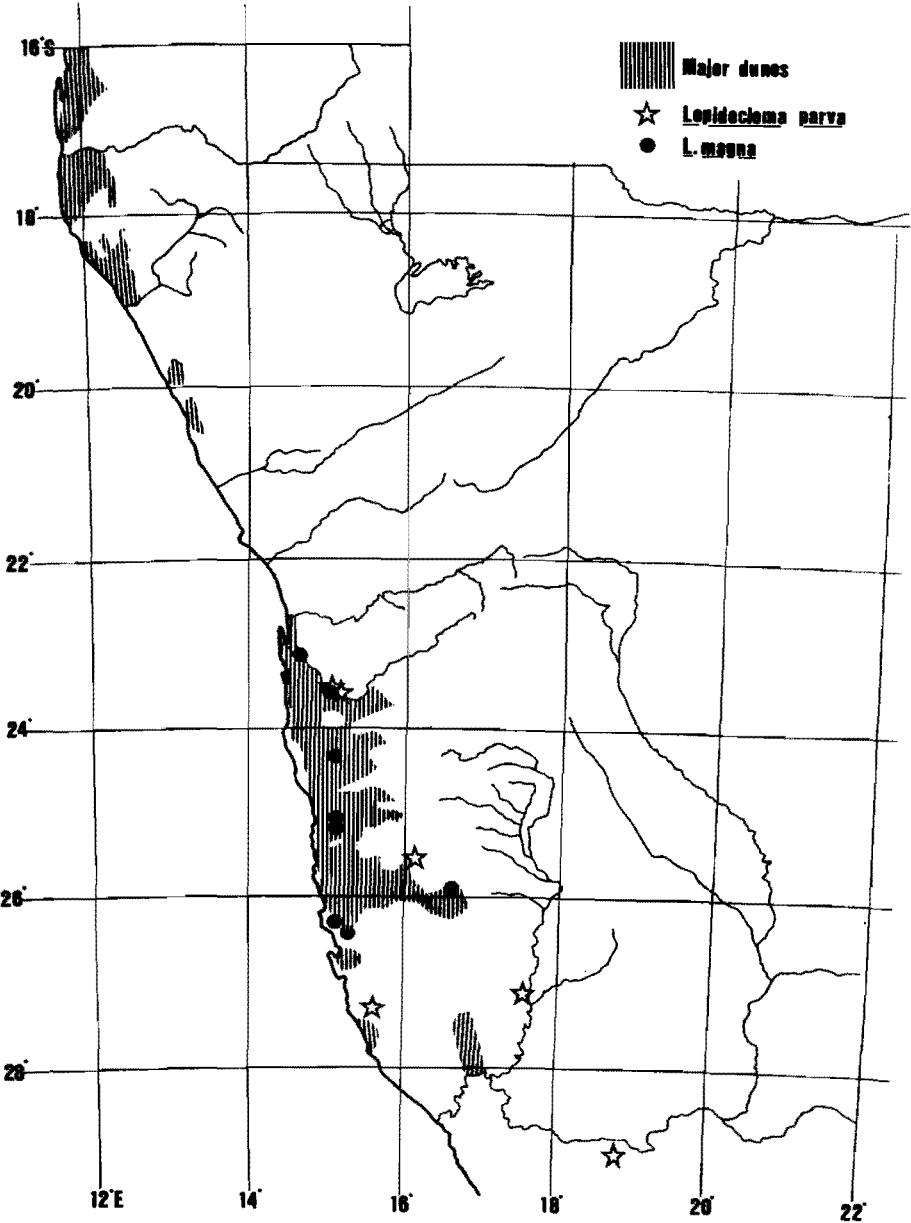


Fig. 17. Distribution patterns of *Lepidoclema magna*, sp. nov. and *L. parva*, sp. nov.

phic features of *Lepidoclema*, namely the reduced last tarsal segment and the enclosed pointed prosternal process are not obvious.

The partly sympatric distribution of the two (obviously very closely related) species (Fig. 17) is reminiscent of the situation found in many ultrapsamophilous beetle genera in the Namib dunes (e.g. the curculionid genus *Leptostethus* and the tenebrionid genus *Lepidochora*). This phenomenon is undoubtedly linked to historical isolation events through movements of dune seas and their dune-dependent faunas (Endrödy-Younga 1982).

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### REFERENCES

- COBOS, A. 1954. Dos Bupréstidos Nuevos (Insecta, Coleoptera) de África del Sur. *Bulletin de Institut royal des Sciences naturelles de Belgique* **30**(27): 1-8.
- 1960. Estudio sobre los *Cylindromorphini* Portevin y descripciones de especies nuevas (Col. Buprestidae) *EOS, Revista Española de Entomología*, **36**: 245-276.
- 1980. Ensayo sobre los Géneros de la Subfamilia *Polycestinae* (Coleoptera, Buprestidae) (Parte 1). *EOS, Revista Española de Entomología* **54**: 15-94.
- ENDRÖDY-YOUNGA, S. 1982. Dispersion and translocation of dune specialist tenebrionids in the Namib area. *Cimbebasia* (A) **5**(9): 257-271.
- OBERBERGER, J. 1924. Kritische Studien über die Buprestiden (Col.) *Archiv für Naturgeschichte* **90** (A) Heft 3: 1-171.
- THÉRY, A. 1938 Notes sur quelques Buprestides du Sud de l'Afrique. *Annals of the Transvaal Museum* **19**(2): 271-277.

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